

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1-25. (Canceled)

26. (Previously Presented) A vehicle including a cushioning arrangement for protecting an occupant in an impact involving the vehicle, the cushioning arrangement comprising:

a frame coupled to a seat of the vehicle, said frame extending upward from a top of the seat such that said cushioning arrangement constitutes a headrest,

a fluid-containing bag attached to said frame, said bag being structured and arranged to allow movement of the fluid within said bag to thereby alter the shape of said bag and enable said bag to conform to a portion of an occupant engaging the cushioning arrangement, the cushioning arrangement being arranged to be in contact with the occupant at least during the impact; and

constraining means arranged within said bag for automatically constraining flow of fluid from a first portion of said bag to a second portion of said bag upon contact by the occupant with a portion of said cushioning arrangement opposite said first portion of said bag prior to or during the impact.

27. (Original) The vehicle of claim 26, further comprising
a deformable cover substantially surrounding said bag, said cover being elastically deformable in response to changes in pressure in said bag.

28. (Cancelled)

29. (Previously Presented) The vehicle of claim 26, wherein said constraining means are arranged to constrain the flow of fluid from an upper portion of said bag to a lower portion of said bag.

30. (Original) The vehicle of claim 29, wherein said constraining means comprise open cell foam.

31. (Original) The vehicle of claim 29, wherein said constraining means are structured and arranged such that when said upper portion contracts, said lower portion expands.

32. (Original) The vehicle of claim 28, wherein the cushioning arrangement is structured and arranged such that when the occupant comes into contact with the cushioning arrangement, fluid within said bag flows substantially within said bag to change the shape of said bag so as to approximately conform to the head and neck of the occupant thereby providing a force on the head and neck of the occupant to substantially accelerate both the head and neck at substantially the same acceleration in order to minimize whiplash injuries.

33. (Previously Presented) The vehicle of claim 26, wherein said constraining means comprise open cell foam.

34. (Original) The vehicle of claim 26, wherein the fluid in said bag is air.

35. (Original) The vehicle of claim 27, wherein said cover comprises stretch seams to allow elastic deformation of said cover.

36. (Original) The vehicle of claim 26, wherein the cushioning arrangement further comprises
a flow restriction arranged in connection with said bag to permit a controlled flow of fluid out of said bag when the occupant is in contact with the cushioning arrangement to thereby dampen the impact of the occupant with the cushioning arrangement.

37. (Previously Presented) A vehicle including a protection system for protecting an occupant in an impact, the protection system comprising:

an anticipatory crash sensor for determining that a crash involving the vehicle is about to occur,
and

a movable, continuously inflated cushioning arrangement coupled to said anticipatory crash sensor, said cushioning arrangement being movable prior to and independent of contact with the occupant toward a likely position of the occupant upon a determination by said anticipatory crash sensor that a crash involving the vehicle is about to occur such that said cushioning arrangement is movable prior to the crash into contact with the occupant.

38. (Original) The vehicle of claim 37, wherein said anticipatory crash sensor is arranged to determine that the crash involving the vehicle is a rear impact.

39. (Original) The vehicle of claim 37, wherein said cushioning arrangement comprises a frame coupled to the vehicle, and a fluid-containing bag attached to said frame, said bag being structured and arranged to allow movement of the fluid within said bag to thereby alter the shape of said bag and enable said bag to conform to the occupant.

40. (Original) The vehicle of claim 39, wherein said bag is preinflated.

41. (Original) The vehicle of claim 39, wherein said cushioning arrangement further comprises a deformable cover substantially surrounding said bag, said cover being elastically deformable in response to changes in pressure in said bag.

42. (Original) The vehicle of claim 39, wherein said frame is coupled to a seat of the vehicle and extends upward from a top of the seat such that said cushioning arrangement constitutes a headrest.

43. (Original) The vehicle of claim 42, wherein said bag includes constraining means for constraining flow of fluid from an upper portion to a lower portion.

44. (Original) The vehicle of claim 43, wherein said constraining means comprise open cell foam.

45. (Original) The vehicle of claim 43, wherein said constraining means are structured and arranged such that when said upper portion contracts, said lower portion expands.

46. (Original) The vehicle of claim 42, wherein said cushioning arrangement is structured and arranged such that when the occupant comes into contact with said cushioning arrangement, fluid within said bag flows substantially within said bag to change the shape of said bag so as to approximately conform to the head and neck of the occupant thereby providing a force on the head

and neck of the occupant to substantially accelerate both the head and neck at substantially the same acceleration in order to minimize whiplash injuries.

47. (Previously Presented) The vehicle of claim 39, wherein said cushioning arrangement further comprises cell foam having openings arranged in said bag.

48. (Previously Presented) The vehicle of claim 39, wherein the fluid in said bag is air.

49. (Original) The vehicle of claim 41, wherein said cover comprises stretch seams to allow elastic deformation of said cover.

50. (Previously Presented) The vehicle of claim 39, wherein said cushioning arrangement further comprises
a flow restriction arranged in connection with said bag to permit a controlled flow of fluid out of said bag when the occupant is in contact with said cushioning arrangement to thereby dampen the impact of the occupant with said cushioning arrangement.

51. (Original) The vehicle of claim 37, further comprising
displacement means for moving said cushioning arrangement, and
a control unit coupled to said anticipatory crash sensor and said displacement means for controlling said displacement means to move said cushioning arrangement based on the determination by said anticipatory crash sensor that a crash involving the vehicle is about to occur.

52. (Previously Presented) A method for protecting an occupant in an impact, comprising the steps of:

positioning a continuously inflated cushioning arrangement in a first position relative to the occupant in which the cushioning arrangement is not in contact with the occupant,

determining that a crash involving the vehicle is about to occur, and

upon a determination that a crash involving the vehicle is about to occur, moving the cushioning arrangement from the first position into a second position in which the cushioning arrangement is in contact with the occupant such that the cushioning arrangement is in the second position in contact with the occupant during the crash.

53. (Original) The method of claim 52, wherein the cushioning arrangement comprises a frame coupled to the vehicle, and
a fluid-containing bag attached to the frame, the bag being structured and arranged to allow movement of the fluid within the bag to thereby alter the shape of the bag and enable the bag to conform to the occupant.

54. (Original) The method of claim 53, wherein the cushioning arrangement further comprises
a deformable cover substantially surrounding the bag, the cover being elastically deformable in response to changes in pressure in the bag.

55. (Original) The method of claim 53, wherein the frame is coupled to a seat of the vehicle and extends upward from a top of the seat such that the cushioning arrangement constitutes a headrest.

56. (Original) The method of claim 52, wherein the step of moving the cushioning arrangement into contact with the occupant comprises the step of:
moving the cushioning arrangement toward the occupant,
detecting when the cushioning arrangement comes into contact with the occupant and then
ceasing movement of the cushioning arrangement.

57. (Original) The method of claim 56, wherein the step of detecting when the cushioning arrangement comes into contact with the occupant comprises the step of arranging a contact switch in connection with the cushioning arrangement.

58. (Original) The method of claim 53, further comprising the step of:
arranging a flow restriction in connection with the bag to permit a controlled flow of air out of the bag when the occupant comes into contact with the cushioning arrangement to thereby dampen the impact of the occupant with the cushioning arrangement.

59. (Original) The method of claim 52, wherein the step of determining that a crash involving the vehicle is about to occur comprises the step of determining that the crash involving the vehicle is a rear impact.

60. (Previously Presented) The vehicle of claim 27, wherein said cover defines an interior, said bag occupying the entire interior of said cover.

61. (Previously Presented) The vehicle of claim 33, wherein said open cell foam includes channels which facilitate the flow of fluid within said bag.

62. (Currently Amended) A vehicle including a cushioning arrangement for protecting an occupant in an impact involving the vehicle, the cushioning arrangement consisting of:

a frame coupled to the vehicle;

a deformable cover defining an interior, at least a part of said frame being arranged in said interior of said cover; [[and]]

a single fluid-containing bag attached to said frame and surrounded by said cover, said bag being structured and arranged to allow movement of the fluid within said bag to thereby alter the shape of said bag and enable said bag to conform to a portion of an occupant engaging the cushioning arrangement, the cushioning arrangement being arranged to be in contact with the occupant at least during the impact; and

said bag being the only fluid-containing bag in the interior of said cover; and

open cell foam arranged in said bag and including channels which facilitate the flow of the fluid within said bag.

63. (Previously Presented) The vehicle of claim 62, wherein said cover is elastically deformable in response to changes in pressure in said bag.

64. (Previously Presented) The vehicle of claim 63, wherein said cover comprises stretch seams to allow elastic deformation of said cover.

65. (Previously Presented) The vehicle of claim 62, wherein said bag occupies the entire interior of said cover.

66. (Previously Presented) The vehicle of claim 62, wherein said frame is coupled to a seat of the vehicle and extends upward from a top of the seat such that the cushioning arrangement constitutes a headrest.

67. (Previously Presented) The vehicle of claim 66, wherein the cushioning arrangement is structured and arranged such that when the occupant comes into contact with the cushioning arrangement, fluid within said bag flows automatically substantially within said bag to change the shape of said bag so as to approximately conform to the head and neck of the occupant thereby providing a force on the head and neck of the occupant to substantially accelerate both the head and neck at substantially the same acceleration in order to minimize whiplash injuries.

68. (Previously Presented) The vehicle of claim 62, wherein said bag includes constraining means for constraining flow of fluid from an upper portion of said bag to a lower portion of said bag.

69. (Currently Amended) The vehicle of claim 68, wherein said constraining means comprise said open cell foam.

70. (Previously Presented) The vehicle of claim 68, wherein said constraining means are structured and arranged such that when said upper portion contracts, said lower portion expands.

71. (Canceled)

72. (Canceled)

73. (Previously Presented) The vehicle of claim 62, wherein the fluid in said bag is air.

74. (Previously Presented) A vehicle including a cushioning arrangement for protecting an occupant in an impact involving the vehicle, the cushioning arrangement comprising:

a frame coupled to the vehicle;

a deformable cover defining an interior, at least a part of said frame being arranged in said interior of said cover; and

a fluid-containing bag attached to said frame and occupying the entire interior of said cover aside from said at least a part of said frame, said cover surrounding said bag,

said cover being elastically deformable in response to changes in pressure in said bag,

said bag being structured and arranged to allow movement of the fluid within said bag to thereby alter the shape of said bag and enable said bag to conform to a portion of an occupant engaging the

cushioning arrangement, the cushioning arrangement being arranged to be in contact with the occupant at least during the impact.

75. (Previously Presented) The vehicle of claim 74, wherein said cover comprises stretch seams to allow elastic deformation of said cover.

76. (Cancelled)

77. (Previously Presented) The vehicle of claim 74, wherein said frame is coupled to a seat of the vehicle and extends upward from a top of the seat such that the cushioning arrangement constitutes a headrest.

78. (Previously Presented) The vehicle of claim 77, wherein the cushioning arrangement is structured and arranged such that when the occupant comes into contact with the cushioning arrangement, fluid within said bag automatically flows substantially within said bag to change the shape of said bag so as to approximately conform to the head and neck of the occupant thereby providing a force on the head and neck of the occupant to substantially accelerate both the head and neck at substantially the same acceleration in order to minimize whiplash injuries.

79. (Previously Presented) The vehicle of claim 74, wherein said bag includes constraining means for constraining flow of fluid from an upper portion of said bag to a lower portion of said bag.

80. (Previously Presented) The vehicle of claim 79, wherein said constraining means comprise open cell foam.

81. (Previously Presented) The vehicle of claim 79, wherein said constraining means are structured and arranged such that when said upper portion contracts, said lower portion expands.

82. (Previously Presented) The vehicle of claim 74, wherein the cushioning arrangement further comprises open cell foam.

83. (Previously Presented) The vehicle of claim 82, wherein said open cell foam includes channels which facilitate the flow of fluid within said bag.

84. (Previously Presented) The vehicle of claim 74, wherein the fluid in said bag is air.

85. (Previously Presented) A vehicle including a cushioning arrangement for protecting an occupant in an impact involving the vehicle, the cushioning arrangement comprising:

- a frame coupled to the vehicle;

- a single fluid-containing bag attached to said frame, said bag being structured and arranged to allow movement of the fluid within said bag to thereby alter the shape of said bag and enable said bag to conform to a portion of an occupant engaging the cushioning arrangement, the cushioning arrangement being arranged to be in contact with the occupant at least during the impact; and

- a deformable cover substantially surrounding said bag, said cover being elastically deformable in response to changes in pressure in said bag, said cover comprising stretch seams to allow elastic deformation of said cover.

86. (Previously Presented) A vehicle including a cushioning arrangement for protecting an occupant in an impact involving the vehicle, the cushioning arrangement comprising:

- a frame coupled to the vehicle;

- a single fluid-containing bag attached to said frame, said bag being structured and arranged to allow movement of the fluid within said bag to thereby alter the shape of said bag and enable said bag to conform to a portion of an occupant engaging the cushioning arrangement, the cushioning arrangement being arranged to be in contact with the occupant at least during the impact; and

- open cell foam arranged in said bag, said open cell foam including channels which facilitate the flow of fluid within said bag.

87. (Canceled)

88. (Previously Presented) The vehicle of claim 37, wherein said cushioning arrangement has a first position not in contact with the occupant and a second position in contact with the occupant and upon a determination by said anticipatory crash sensor that the crash involving the vehicle is about to occur, said cushioning arrangement being movable prior to the crash from the first position to the second position and toward the likely position of the occupant.